

Claims Listing:

1. (Previously presented) A catheter comprising:
 - a catheter shaft having a proximal end and a distal end;
 - an inflation balloon having a proximal waist portion, a proximal cone portion, a main body portion, a distal cone portion and a distal waist portion; and
 - a catheter tip having a guidewire lumen extending therethrough, the catheter tip comprising a proximal end, a distal end, a proximal shaft portion, a central shaft portion and a distal shaft portion, a cross-sectional area of the central shaft portion defined by a single peripheral layer of catheter tip material extending around said guidewire lumen, said cross-sectional area of the central shaft portion being substantially equal to a cross-sectional area of the proximal shaft portion and substantially equal to a cross-sectional area of the distal shaft portion, said catheter tip comprising a first recessed portion located between the distal shaft portion and the central shaft portion and a second recessed portion located between the central shaft portion and the proximal shaft portion, each recessed portion extending around a full outer periphery of the catheter tip, a cross-sectional area of the first recessed portion being less than said cross-sectional area of the central shaft portion, a cross-sectional area of the second recessed portion being less than said cross-sectional area of the central shaft portion, said catheter tip proximal end being coupled to said catheter shaft distal end, said balloon distal waist portion being attached to said catheter tip distal shaft portion; the first recessed portion oriented beneath the balloon distal cone portion and the second recessed portion oriented beneath the proximal cone portion, in an unexpanded state at least a portion of the balloon being stored in the first recessed portion.
2. (Previously presented) The catheter of claim 1, further comprising at least one marker oriented beneath the balloon main body portion.
3. (Original) The catheter of claim 2, wherein said marker is a radiopaque marker.
4. (Original) The catheter of claim 2, wherein said marker is an MRI marker.
5. (Original) The catheter of claim 1, wherein said catheter tip distal end comprises a radiused tip.
6. (Previously presented) The catheter of claim 1, wherein the balloon is unexpanded, at least a portion of the balloon distal cone portion is stored in the first recessed portion, and at least a portion of the balloon proximal cone portion is stored in the second recessed portion.

7. (Previously presented) The catheter of claim 1, wherein said central shaft portion of the catheter tip further comprises a hub portion oriented beneath the balloon main body portion, the hub portion having a larger cross-sectional area than the central shaft portion.
8. (Original) The catheter of claim 7, wherein said catheter tip comprises a molded catheter tip and said hub portion is formed integrally with the catheter tip.
9. (Original) The catheter of claim 8, further comprising at least one marker.
10. (Original) The catheter of claim 9, wherein said radiopaque marker is insert molded.
11. (Previously presented) The catheter of claim 9, wherein an outer surface of said radiopaque marker is flush with an outer surface of said catheter tip.
12. (Original) The catheter of claim 1, further comprising a stiffener.
13. (Original) The catheter of claim 12, wherein the stiffener is a spring.
14. (Previously presented) The catheter of claim 1, wherein said catheter tip further comprises a marker region entrained with a radiopaque material.
15. (Original) The catheter of claim 1, wherein said catheter tip further comprises a first region and a second region, said first region having greater flexibility than said second region.
16. (Previously presented) A catheter comprising:
 - a catheter shaft having a proximal end and a distal end;
 - an inflation balloon having a proximal waist portion, a proximal cone portion, a distal cone portion and a distal waist portion; and
 - a catheter tip having a proximal end, a distal end, a main shaft portion and a distal shaft portion, the catheter tip comprising a recessed portion, a cross-sectional area of the recessed portion being less than a cross-sectional area of the catheter tip at a location proximal to the recessed portion and at a location distal to the recessed portion, the recessed portion oriented beneath the balloon distal cone portion, in an unexpanded state at least a portion of the balloon being secured in the recessed portion; said catheter tip comprising a first region and a second region, said first region having greater flexibility than said second region; said catheter tip proximal end being coupled to said catheter shaft distal end, said balloon distal waist portion being attached to said catheter tip distal shaft portion; said catheter tip main shaft portion being substantially coextensive with said balloon;

wherein said second region comprises entrained stiffening fibers selected from a group consisting of polypropylene fibers and polyolefin fibers.

17. (Original) The catheter of claim 1, further comprising:

an outer catheter shaft;

wherein said balloon proximal waist portion is coupled to said outer catheter shaft.

18. (Original) The catheter of claim 1, wherein said catheter tip is coupled to said catheter shaft by heat bonding.

19. (Original) The catheter of claim 1, wherein said catheter tip is coupled to said catheter shaft by radio-frequency welding.

20. (Original) The catheter of claim 1, wherein said catheter tip is coupled to said catheter shaft with an adhesive.

21. (Original) The catheter of claim 1, wherein the catheter is a stent delivery catheter.

22. (Original) The catheter of claim 21, further comprising a stent mounted about the balloon.

23. (Original) The catheter of claim 22, wherein the stent is an inflation expandable stent.

24. (Original) The catheter of claim 22, wherein the stent is a self-expanding stent.

25. (Previously presented) The catheter of claim 1, wherein at least a portion of the central shaft portion has a plurality of sides.

26. (Previously presented) The catheter of claim 25, wherein the central shaft portion is triangular.

27-57. (Cancelled)

58. (Previously presented) The catheter of claim 16, said catheter tip comprising a second recessed portion, a cross-sectional area of the second recessed portion being less than a cross-sectional area of the catheter tip at a location proximal to the second recessed portion and at a location distal to the second recessed portion;

wherein the balloon is unexpanded, at least a portion of the balloon distal cone portion is stored in said recessed portion, and at least a portion of the balloon proximal cone portion is stored in said second recessed portion.

59. (Previously presented) The catheter of claim 15, wherein said second region comprises entrained stiffening fibers selected from a group consisting of carbon fibers,-polypropylene fibers and polyolefin fibers.

60. (Previously presented) The catheter of claim 1, wherein the balloon main body portion is cylindrical.